

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

## Victorian Certificate of Education 2004

### STUDENT NUMBER

Figures

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Words

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Letter

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## PSYCHOLOGY

### Written examination 2

Thursday 4 November 2004

Reading time: 9.00 am to 9.15 am (15 minutes)  
Writing time: 9.15 am to 10.45 am (1 hour 30 minutes)

### QUESTION AND ANSWER BOOK

#### Structure of book

Section	Number of questions	Number of questions to be answered	Number of marks
A	45	45	45
B	19	19	45
			Total 90

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners and rulers.
- Students are NOT permitted to bring into the examination room: blank sheets of paper and/or white out liquid/tape.
- No calculator is allowed in this examination.

#### Materials supplied

- Question and answer book of 20 pages.
- Answer sheet for multiple-choice questions.

#### Instructions

- Write your student number in the space provided above on this page.
- Check that your name and student number as printed on your answer sheet for multiple-choice questions are correct, and sign your name in the space provided to verify this.

- All written responses must be in English.

#### At the end of the examination

- Place the answer sheet for multiple-choice questions inside the front cover of this book.

Students are NOT permitted to bring mobile phones and/or any other electronic communication devices into the examination room.

### AREA OF STUDY 2 – LEARNING

#### Question 16

At around 8–10 months babies begin crawling.

This is due to

- A. conditioned behaviour.
- B. reflexes.
- C. maturation.
- D. a fixed action pattern.

#### Question 17

In classical conditioning, nature provides the \_\_\_\_\_ connection and conditioning provides the \_\_\_\_\_ connection.

- A. UCS-CS; UCR-CR
- B. UCR-CR; UCS-CS
- C. CS-CR; UCS-UCR
- D. UCS-UCR; CS-CR

#### Question 18

A bell rings, then a puff of air into the eye causes a reflexive blink. After this happens on several occasions, the bell ringing alone causes a conditioned reflexive blink. The UCS is \_\_\_\_\_ and the CS is \_\_\_\_\_.

- A. puff of air; blinking
- B. bell; blinking
- C. puff of air; bell
- D. bell; puff of air

#### Questions 19 to 22 relate to the following scenario

Six weeks ago I ate a chicken sandwich that was contaminated with bacteria. It gave me food poisoning, and I was very ill for several days afterwards.

#### Question 19

Yesterday, someone offered me a chicken sandwich at a party, and when I saw it I felt ill again.

The illness that I felt yesterday was

- A. an unconditioned response.
- B. a conditioned response.
- C. a conditioned stimulus.
- D. an unconditioned stimulus.

#### Question 20

The illness that I suffered six weeks ago when I ate the contaminated chicken sandwich was

- A. an unconditioned response.
- B. a conditioned response.
- C. a conditioned stimulus.
- D. an unconditioned stimulus.

**Question 21**

The thought of a chicken sandwich when someone offered me one yesterday was

- A. an unconditioned response.
- B. a conditioned response.
- C. a conditioned stimulus.
- D. an unconditioned stimulus.

**Question 22**

The contaminated chicken sandwich that I ate six weeks ago and that made me feel sick was

- A. an unconditioned response.
- B. a conditioned response.
- C. a conditioned stimulus.
- D. an unconditioned stimulus.

**Question 23**

A researcher conditions a dog to salivate at the sound of a bell. This is then followed by food. After some time the sound of the bell alone (that is, without food) no longer leads to salivation.

This is referred to as

- A. spontaneous recovery.
- B. extinction.
- C. acquisition.
- D. stimulus generalisation.

**Question 24**

Before learning, an unconditioned stimulus elicits

- A. an unconditioned response.
- B. a conditioned response.
- C. a conditioned stimulus.
- D. negative reinforcement.

**Question 25**

Jerome was bitten by a spider when he was eight years old. He then developed a phobia about spiders. He is now sixteen and runs away every time he sees a spider, or a picture of one. He avoids any films about insects and going near a wildlife area.

This behaviour can be explained by

- A. spontaneous recovery.
- B. extinction.
- C. stimulus discrimination.
- D. stimulus generalisation.

**Questions 26 and 27 relate to the following scenario**

Claire receives a special treat from her mother every time she tidies her room, and an additional treat at the end of each week if she washes the dishes after meals.

**Question 26**

This type of conditioning is referred to as \_\_\_\_\_ and the treat is called a \_\_\_\_\_.

- A. classical conditioning; stimulus
- B. operant conditioning; reinforcer
- C. classical conditioning; reinforcer
- D. operant conditioning; stimulus

**Question 27**

In terms of schedules of reinforcement, Claire's tidying her room is rewarded on a \_\_\_\_\_ basis, while washing the dishes is rewarded on a \_\_\_\_\_ basis.

- A. variable ratio; fixed interval
- B. variable interval; variable ratio
- C. continuous; fixed interval
- D. fixed interval; fixed ratio

**Question 28**

A token economy is most effective when

- A. tokens are given for successive approximations towards more complex desired behaviour.
- B. a penalty system is put in place that makes it very easy to lose tokens.
- C. many tokens are required to reach an award.
- D. each token is received in the form of a favourite food. For example, each token is a lolly.

**Question 29**

Punishment

- A. aims to remove desirable behaviours without necessarily replacing them with undesirable ones.
- B. can lead to aggressive behaviour.
- C. should not be administered consistently and immediately for maximum effect.
- D. does not lead to the reduction of undesirable behaviours.

**Question 30**

Bandura's BoBo doll experiments found that children were more likely to imitate the aggressive behaviour of a model if

- A. the model was seen to be reinforced after behaving aggressively.
- B. other adults showed disapproval of the aggressive behaviour of the model.
- C. other children did not imitate the aggressive behaviour of the model.
- D. the model was punished after behaving aggressively.

## AREA OF STUDY 3 – RESEARCH METHODS

### Questions 31–34 relate to the following information

A researcher was investigating whether the presence of speed cameras had any impact on driving behaviour. She was interested in whether drivers slowed down if they knew speed cameras might be operating. She went to a busy road where there was no evidence of speed cameras and recorded the speed of 100 drivers as they drove past a particular point on the road. She returned to the same road one week later and installed large warning signs saying speed cameras operated in the area. She then recorded the speed of 100 drivers as they drove past the same point on the road that she used in the previous week.

#### Question 31

What is the likely operational hypothesis?

- A. Warning signs have an impact on driving behaviour.
- B. The more you drive the more likely you are to speed.
- C. Warning signs lead to a decrease in speeding behaviour.
- D. Warning signs are as effective as actually having visible speed cameras in reducing driving speed.

#### Question 32

The independent variable is

- A. the presence of the warning signs.
- B. paying attention or not to the warning signs.
- C. the driving speed when the warning signs were present.
- D. the driving speed when there were no warning signs.

#### Question 33

The dependent variable is

- A. driving speed.
- B. the presence of the warning signs.
- C. the location of the warning signs.
- D. driving speed when there were no warning signs.

#### Question 34

Which statement best describes the way the subjects were selected?

- A. They are a random sample of the population.
- B. They are volunteers who may not reflect the population.
- C. They are a stratified sample of part of the population.
- D. They are classified as a control group for the purposes of the study.

#### Question 35

Research has shown that as the temperature increases in summer, fewer people attend gymnasiums.

What relationship would this indicate between the variables?

- A. no correlation
- B. null correlation
- C. a positive correlation
- D. a negative correlation

#### Question 36

In an independent groups research design

- A. different participants with similar characteristics are used in both the control and experimental conditions.
- B. the same participants are used in both the control and experimental conditions.
- C. different participants are used in both the control and experimental conditions.
- D. the same participants are used in only one trial of the control and experimental conditions and different participants are used in subsequent trials.

#### Question 37

What is the main advantage of true experimental research designs?

- A. The researcher does not control the choice of treatment.
- B. They permit the researcher to make cause and effect statements.
- C. The treatment groups are based on pre-existing grouping factors.
- D. Both variables are dependent variables.

#### Question 38

A study looking at sex differences in attitudes towards gun control

- A. could use a repeated measures design.
- B. could not use an independent samples design.
- C. could use a matched samples design.
- D. could not use a stratified sampling design.

#### Question 39

In correlational research

- A. the larger the correlation, the more likely there is to be a cause and effect relationship between the two variables.
- B. a correlation coefficient of 1.6 would represent a remarkably strong relationship.
- C. a large negative correlation can be interpreted in the same way as a large positive correlation.
- D. a large negative correlation can be just as significant as a large positive correlation.

#### Question 40

A researcher wants to see if his students have improved throughout the year. He records the marks that his students received for their first lab reports at the beginning of the year, and he compares these results with the marks that his students receive for their lab reports at the end of the year. So, from each student, he has two results: one for the first lab report and one for the second lab report.

Which one of the following statements is true of this research?

- A. The researcher is using an independent groups design.
- B. The researcher is using a repeated measures design.
- C. The researcher could avoid practice effects by counterbalancing the testing order.
- D. The dependent variables are the two times (beginning of the year and end of year).

## AREA OF STUDY 2 – LEARNING

They are doing which of the following?

- A. constructing an operational hypothesis
- B. generalising the results to the sample
- C. making inferences from the statistics
- D. commenting on experimental method

Professor Von Trapp is studying how the length of time that a stimulus is exposed to a participant affects the participant's ability to recall the shape of the stimulus. She recruits 30 first-year university students, 15 male and 15 female. Each participant is presented with three sets of 10 shapes, which are exposed for: four seconds for the first set of 10 shapes, two seconds for the second set of 10 shapes and one second for the third set of 10 shapes. She then asks each participant to perform a memory recognition task for 50 different shapes, the 30 shapes previously seen and 20 distractors.

The independent variable of the experiment is

- A. the length of time of stimulus exposure.
- B. the participants' recognition memory performance.
- C. the education level of the participants.
- D. the gender of the participants.

The dependent variable of the experiment is

- A. the education level of the participants.
- B. the length of time of stimulus exposure.
- C. the gender of the participants.
- D. the participants' recognition memory performance.

What research design was used in the professor's study?

- A. repeated measures  
B. matched subjects  
C. independent groups  
D. correlational

A confounding variable that was not controlled for in the study was

- A. the order of time of exposure of the stimuli.
- B. the memory skill of the participants.
- C. the length of exposure of the stimuli.
- D. the level of education of the participants.

**Question 10**

Ishmael was finding it difficult to do his VCE homework each night, so his mother came up with an unusual plan. She offered him the following: for every evening he completes his homework, he would not have to wash the dishes or take out the rubbish.

This system seems to work, as now Ishmael completes his homework almost every night.

- a. This is an example of what type of operant conditioning?

\_\_\_\_\_ 1 mark

- b. Describe one key feature of this type of learning.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

1 mark

- c. Name and describe a different method of operant conditioning that could also ensure that Ishmael completes his homework every night.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

1 + 1 = 2 marks

**Question 11**

Describe two main findings from Harrison's study (1992) on observational learning in different cultures.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ 2 marks

**Question 12**

With regard to how information is learned, describe a major difference between classical conditioning and operant conditioning.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ 2 marks

**Question 13**

- a. Define the term 'learning set'.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ 1 mark

- b. Give an example of a learning set from everyday life.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ 1 mark

## AREA OF STUDY 3 – RESEARCH METHODS

## Question 14

- a. Describe the difference between single-blind and double-blind procedures in experimental design.

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2 marks

- b. What is the purpose of a placebo in an experiment?

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1 mark

## Question 15

- a. Give one reason why a researcher might be justified in deliberately deceiving a research participant.

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1 mark

- b. Give one reason why it is important for researchers to debrief research participants.

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1 mark

- c. Apart from rights related to deception and debriefing, list two other ethical rights of research participants.

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2 marks

SECTION B – AREA OF STUDY 3 – continued  
TURN OVER

## Question 16

Nikita, the school librarian, is trying to find out how to make more students return their library books on time. She decides to test two conditions. She places half the books in a standard cover, she places the other half of the books in a bright orange cover. Nikita assigns students to one of the conditions at random over the next week. She then records whether the books are returned on time or not. Nikita finds that the books in the bright orange cover are returned at a slightly higher rate than books in the standard cover ( $p > .05$ ).

The results are as follows.

	Standard cover	Bright orange cover
Books returned on time	72%	74%

- a. What is the independent variable in this study?

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1 mark

- b. What conclusion can be drawn from the results of this study?

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## Question 17

What is a difference between inferential and descriptive statistics?

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1 mark

## Question 18

Outline one advantage and one disadvantage of a matched subjects design.

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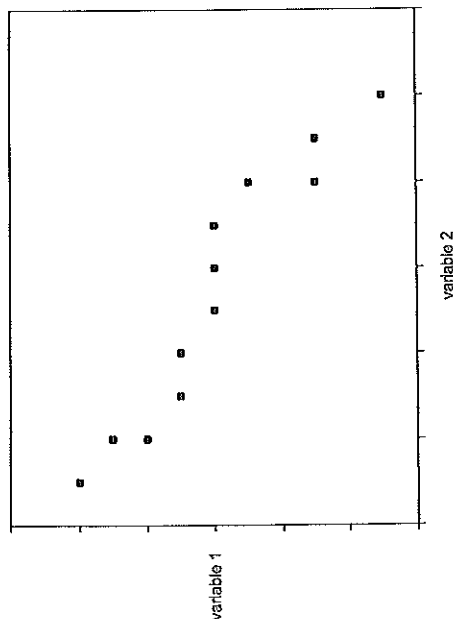
2 marks

2 marks

SECTION B – AREA OF STUDY 3 – continued  
TURN OVER

## Question 19

Look at the following scatterplot.



a. How would you describe the relationship between the two variables?

1 mark

b. What statistical test would you use to test the strength of the relationship between the two variables?

1 mark

## 2004 Assessment Report

### 2004 Psychology GA 3: Written examination

#### GENERAL COMMENTS

Performance on the November 2004 paper was generally comparable with November 2003. There was a slight reduction in the mean score for the short answer section, suggesting that – as in the Unit 3 examination – students continued to have some difficulty with the interpretation of questions and with precision in their responses. In each of the three Areas of Study, the mean score for the multiple choice section was higher than the mean score for the equivalent short answer section. As in 2002 and 2003, the lower mean for the short answer section tended to be a result of imprecise or incomplete answers.

In contrast to 2003, the 'Research Methods' part yielded the highest average score in the short answer section (a mean of 48% correct), with 'Memory' next (45%). As usual, 'Learning' (41%) was the most problematic. In the multiple choice section, 'Research Methods' (56% correct) was much more poorly answered than either 'Memory' (80% correct) or 'Learning' (74% correct).

#### Marking Policy

It is emphasised that a two-mark question will generally require two pieces of information. One mark will be given for each part, and an answer that fails to address both parts cannot achieve full marks; in this examination this applied to Questions 8 and 10c.

Students should be aware that where a question requires the definition of a term, the use of the term (or its derivatives) as part of the definition precludes the award of full credit for that response – clearly such a response does not show full understanding. This related to Question 13a in this examination.

This examination contained several questions in which students were required to highlight similarities or differences. Students are advised to indicate where the similarity or difference lies; for example, in Question 3, a useful structure for a response would be:

'A similarity is that both maintenance and elaborative rehearsal involve....A difference is that maintenance rehearsal....But elaborative rehearsal...'

The examination contained several questions in which students were required to answer with respect to a certain theory, for example, 'Repression Theory' (Question 1). Students must be careful to follow the instructions in such cases.

#### SPECIFIC INFORMATION

##### Multiple choice questions

This section was generally well answered, with a mean performance 80% for the first Area of Study and over 70% on the second. The mean score for 'Research Methods' was over 50%.

This table indicates the number of students who chose each option, with the correct answer indicated by shading. Some of the questions that students found most difficult are discussed.

Question	A	B	C	D	Comments
Memory					
1	1	93	3	3	
2	2	85	8	5	
3	92	4	2	2	
4	15	71	7	6	
5	2	3	94	1	
6	74	4	6	16	
7	0	5	10	84	
8	7	6	4	83	
9	66	23	5	6	It is surprising that 23% of students gave the reason for the Recency Effect as an explanation for the Primacy Effect.
10	5	4	90	1	
11	19	72	6	3	
12	36	60	1	3	Alternative A is an example of Pro-active Interference.

13	4	1	5	90	Clearly the interference is material from the past causing problems with new learning, so alternative D cannot be correct.
14	4	3	67	26	
15	9	2	4	85	
Learning					
16	3	2	84	10	
17	13	9	5	72	
18	7	15	67	11	
19	8	85	5	2	
20	83	6	4	7	
21	7	24	62	7	
22	5	3	12	79	
23	4	83	6	6	
24	85	6	3		
25	2	1	13	84	
26	1	86	11	1	
27	23	10	50	18	This distribution of responses suggests that the concept of schedules of reinforcement is not clearly understood by many students. It is emphasised that reinforcement of every response is classified as Continuous Reinforcement, not Fixed Interval or Fixed Ratio.
28	57	12	41	9	It is difficult to see why many students chose alternative C. Clearly a low to moderate number of responses would be most efficient. The alternative of making it easy to lose tokens is precisely how to make a token economy ineffective, and favourite foods cannot be tokens.
29	20	62	11	6	
30	95	2	1	2	
Research methods					
31	14	0	40	45	The fact that 45% of students chose a hypothesis that was not being tested by the research described shows the need for careful reading of the questions.
32	84	5	7	4	
33	86	7	2	6	
34	77	4	15	4	
35	3	2	13	82	
36	8	11	72	10	
37	17	66	11	6	It must be emphasised that matching of samples is on certain variables selected by the researcher as being potential confounds. The fact that the genders are being compared in no way rules out matching for example by intelligence, family income, level of education or any other potentially relevant variable.
38	23	22	38	17	It cannot be emphasised too strongly, correlational research is not attempting to explain cause and effect.
39	29	10	5	55	Although C is clearly the correct answer, it must be emphasised that the popular alternative B could not be correct as generalisation of the results is to the population and not to the sample.
40	5	75	8	11	
41	8	28	61	2	
42	84	11	2	3	
43	2	11	3	83	
44	47	18	26	9	Since the same participants are used for the three different conditions of the Independent Variable (time of exposure of stimulus), alternative A is clearly correct.
45	16	67	5	11	It was pleasing to note that only 11% of students chose alternative D following the comments in the November 2003 Assessment Report noting that, in a similar question about university students, 42% responded that level of education was not controlled for. It is considered, similarly, that memory skill of the students would vary within reasonable limits. Counterbalancing is essential to eliminate order effects in such research and this was clearly not part of the experimental design.

## Short answer questions

### Area of Study 1 - Memory

Question 1				
Marks	0	1	2	Average
%	32	47	21	0.9

#### Possible Answer:

Repression is a defence mechanism—an unconscious device to protect the individual from the long-term effects of a traumatic event. This means that the material (that is still in memory) is not brought to consciousness and its negative effects are avoided.

Many students failed to respond according to the theory of repression and thus did not gain any marks.

#### Question 2a

Marks	0	1	Average
%	54	46	0.5

#### Possible Answer:

The mark was awarded for any curve that intersected the vertical axis at or near 100% and showed a rapid decline at first followed by a much slower decline or levelling out after 20 minutes to one hour.

This is simply the forgetting curve, and the intervals on the horizontal axis are similar to those shown for Ebbinghaus' curve in the texts. Since it is not possible to tell whether the Spanish words were similar to their English equivalents, it was considered that semantic encoding may have been possible and thus the loss of words from memory may have been slower and less in total than Ebbinghaus' original findings.

Many students lost the mark because they drew a curve that resembled the serial position effect, including an ascending curve at the right extremity.

#### Question 2b

Marks	0	1	Average
%	52	48	0.5

#### Possible Answer:

$$\frac{T^1 - T^4}{T^1} \times 100$$

$T^1$  &  $T^4$  may refer to Time or Trials.

#### Question 3

Marks	0	1	2	Average
%	26	42	33	1.1

#### Possible Answer:

Similarities – any of:

- both involve mental repetition of the items
- both improve memory
- both may lead to encoding.

Differences – any of:

- E.R. active, M.R. more passive
- E.R. involves meaning, M.R. no meaning
- E.R. involves linking to other material in LTM, M.R. no linking
- E.R. transfers to LTM, M.R. often stays in STM.



Question 4a

Marks	0	1	Average
%	39	61	0.6

Possible Answer:

Either of:

- atrophy of brain tissue (deterioration of hippocampus)
- destruction of neurons involved in production of acetylcholine (stops production of some neurotransmitters).

Many students described a psychological effect, such as difficulty forming new memories. The question required an answer in terms of the physiology of the brain.

Question 4b

Marks	0	1	Average
%	50	50	0.5

Possible Answer:

Either of:

- episodic memories (semantic memories may also be included)
- the formation of new memories.

Question 5a

Marks	0	1	Average
%	65	35	0.4

Possible Answer:

The tip of the tongue phenomenon is where a person can recall certain features of an item from memory, but not the whole concept. This is retrieval failure; the material is in the memory but only parts can be retrieved.

Question 5b

Marks	0	1	Average
%	51	49	0.5

Possible Answer:

Memories are stored in the brain in a complex manner. Each memory involves a number of locations and for the complete memory to be retrieved, each location must be accessed. When retrieval fails, a person only accesses one or two of the locations and only part of the whole memory is retrieved.

Question 6a

Marks	0	1	2	Average
%	46	26	28	0.8

Possible Answer(s):

Any two of:

- slowing down of mental processing
- lack of motivation
- lack of confidence in their own ability to learn or retrieve information
- lack of mental activity (for example, social isolation).

Many students lost marks because they described possible causes of memory decline in a patient with brain damage or dementia; the question quite specifically asked about a **healthy elderly person**.

Question 6b

Marks	0	1	Average
%	53	47	0.5

Possible Answer:

Recognition

Question 7

Marks	0	1	2	Average
%	31	26	43	1.1

Possible Answer:

Any appropriate acronym and any appropriate acoustic. In each case, the material to be learned must be clearly identified.

Many students gave an acoustic (for example, Richard Of York Gained Battles In Vain) or an acronym (for example, ROY G. BIV) without identifying the material that the mnemonic was being used to represent (in this case, colours of the visible spectrum). Since this was clearly required by the wording of the question, such answers did not gain any marks.

## Area of Study 2 - Learning

Question 8

Marks	0	1	2	Average
%	41	35	24	0.8

Possible Answer:

A fixed action pattern is an innate predisposition to behave in a certain way, in response to a specific environmental stimulus, that is characteristic of the particular species/group of organisms. Any appropriate example was accepted.

Many examples were vague and did not demonstrate the student's understanding of the concept; for example, 'Salmon swimming upstream' as opposed to 'Salmon swimming upstream to spawn (in the river where they were hatched)'.

Question 9a

Marks	0	1	2	Average
%	71	16	13	0.4

Possible Answer:

Pair the unwanted stimulus (the cigarette – *Conditioned or Neutral Stimulus*) with a stimulus (an electric shock – *Unconditioned Stimulus*) that reflexively produces an unwanted response (pain – *Unconditioned Response*). After several pairings, the *Conditioned Stimulus* (the cigarette) will produce the same response (*Conditioned Response*) even when it is not paired with the *Unconditioned Stimulus* (the electric shock).

Many students lost marks because they failed to follow the instructions in the question and did not use the language of classical conditioning; that is, the terms italicised in the example above.

Question 9b

Marks	0	1	Average
%	53	47	0.5

Possible Answer:

One of:

- failure to generalise outside the clinical situation
- overgeneralisation (want to give up drinking alcohol – develop aversion to drinking)
- ethical considerations; specifically, causing physiological or psychological harm to patient
- extinction without repeated administrations of the UCS + CS pairing.

Question 10a

Marks	0	1	Average
%	48	52	0.5

Possible Answer:

Negative Reinforcement

Question 10b

Marks	0	1	Average
%	59	41	0.4

Possible Answer:  
Strengthening of response by removal of an aversive stimulus.

Question 10c

Marks	0	1	2	Average
%	23	16	61	1.4

Possible Answer:  
Any of:

- positive reinforcement or punishment – either by presentation of an aversive stimulus or through response cost
- shaping – showing reinforcement of successive approximations as Ishmael does more and more of his homework each night
- token economy (appropriately described)
- behaviour modification (appropriately described).

Any possible method of Operant Conditioning was accepted, but the description and name gained full marks only if they matched. This is an example of a question where two separate points must be made to earn full marks.

Question 11

Marks	0	1	2	Average
%	84	11	5	0.2

Possible Answer:  
Two of:

- behaviour modelling led to improvement in culturally appropriate behaviour when compared to no training
- behaviour modelling was no more successful than cognitive training in causing improvement in culturally appropriate behaviour
- a combination of methods was most successful.

Many students did not attempt to answer this question. It seems likely that this point was not addressed in some schools, which emphasises the point that, when setting the examination, the panel will, and must, use the Psychology Victorian Certificate of Education Study Design as the guide for content for the examination.

Question 12

Marks	0	1	2	Average
%	43	16	41	1.0

Possible Answer:  
One of:

Classical Conditioning	Operant Conditioning
The organism is passive when either the CS or UCS is presented	The organism must be active to receive the reinforcement or punishment
Only involuntary (reflexive) responses are involved	May involve both voluntary and involuntary responses
Response (for example, salivation) depends on the reinforcement being presented (UCS or meat powder)	Reinforcement (for example, food pellet) depends on the response being made (for example, lever press)
The reinforcer is the UCS and this precedes the response	The reinforcer follows the desired response
A specific stimulus results in a particular response	No specific stimulus produces a particular response
One stimulus substitutes for another	No substitution takes place
In humans, emotions such as fear, which are associated with the autonomic nervous system, are primarily involved	Responses associated with goal-seeking behaviour are primarily involved
One reinforcer elicits only one type of response (for example, food leads only to salivation)	One reinforcer can be used to strengthen a wide variety of responses (for example, money for completing homework/babysitting)

Many students lost marks because, despite describing a characteristic of Classical or Operant Conditioning, they failed to show how this characteristic contrasted with the other form of learning.

Question 13a

Marks	0	1	Average
%	54	46	0.5

Possible Answer:  
Either of:

- previous learning influences the ability to learn in another environment
- learning how to learn.

Although technically learning set includes both positive transfer and negative transfer, identification of either or both in a student's answer was awarded a mark.

Question 13b

Marks	0	1	Average
%	50	50	0.5

Possible Answer:  
Any appropriate example was given credit, whether from learning facts, learning to identify (for example, names and faces) or procedures.

## Area of Study 3 – Research Methods

Question 14a

Marks	0	1	2	Average
%	27	24	48	1.2

Possible Answer:  
Single-blind: only the participants are unaware of whether or not they are receiving the treatment condition of the independent variable.

Double-blind: both the participants and the researcher administering the treatment/placebo are unaware of which participants are receiving the treatment condition of the independent variable and which are not.

Many students lost marks for vague or ambiguous wording. Many students who made such comments as 'both subjects and researcher are unaware of what is going on' did not show an understanding of the concept and earned no marks.

Question 14b

Marks	0	1	Average
%	70	30	0.3

Possible Answer:  
To eliminate the influence of participant expectations. A placebo effect occurs when participants modify behaviour in accordance with what they believe the outcome of the treatment will be.

Use of a placebo means that the difference in outcome between control and experimental conditions will be due to the independent variable, not merely to participation in the experiment.

It was acceptable for students to use the term placebo in reference to either an initiation of the treatment condition, or in reference to the group of participants.

Question 15a

Marks	0	1	Average
%	65	35	0.4

Possible Answer:

Either of:

- the ethics committee has given permission for the deception (and put appropriate debriefing procedures in place)
- fully informing participants prior to the research would render the results of the research invalid (and the researcher has put appropriate debriefing procedures in place).

The second of the responses above was the most frequent. The information in parentheses was desirable but not required.

Question 15b

Marks	0	1	Average
%	56	44	0.5

Possible Answer:

To prevent psychological or physiological harm to participants.

Since this is the overriding consideration in developing ethical guidelines for research, it is surprising that less than half the students gained the mark for this question.

Question 15c

Marks	0	1	2	Average
%	13	23	65	1.5

Possible Answer:

Two of:

- no psychological or physiological harm to participants
- withdrawal rights
- informed consent
- voluntary participation
- participant confidentiality
- or any other appropriate ethical consideration.

Not surprisingly, the significant majority of students gained full marks for this question. Since the instruction in the question was to 'list' students were required only to name the ethical considerations; explanation or description of the terms was unnecessary.

Question 16a

Marks	0	1	Average
%	27	73	0.7

Possible Answer:

Either of:

- standard cover/bright orange cover
- colour of book cover

Question 16b

Marks	0	1	Average
%	74	26	0.3

Possible Answer:

Either of:

- there is no (statistically) significant difference in the return rates for the two types of book cover
- no conclusion can be drawn.

Students appeared unwilling to accept that no conclusions can be drawn for much research that is undertaken. It is emphasised that this was a question about the meaning of statistical significance.

Question 17

Marks	0	1	2	Average
%	44	33	23	0.8

Possible Answer:

Descriptive statistics only give information about the nature of the data set, or enable manipulation and organisation of the data.

Inferential statistics enable any of the following:

- generalisation of findings to the population
- testing of hypotheses
- determining statistical significance
- drawing conclusions from results.

As with Question 12, many students lost marks because, despite describing a characteristic of inferential or descriptive statistics, they failed to show how this characteristic was different from characteristics of the other type of statistical procedures.

Question 18

Marks	0	1	2	Average
%	55	29	16	0.6

Possible Answer:

Advantages – any of:

- needs fewer subjects (than independent groups)
- experimentation is not over extended time (c.f. Repeated Measures) – fewer drop-outs
- fewer order effects (c.f. Repeated Measures)
- controls for the effects of the variable on which participants are matched.

Disadvantages – any of:

- time and expense required to collect information on the matched variable
- if one of a pair drops out, both participants are lost to the data pool.

The distribution of marks reflects a poor level of understanding of experimental designs and shows students' difficulty in providing accurate responses where there is a minor degree of complexity in the question. A good response identified the advantage and disadvantage and indicated the type of experimental design with which the comparison was made; for example, 'not over extended time' is not an advantage over Independent Groups, only over Repeated Measures.

Question 19a

Marks	0	1	Average
%	27	73	0.7

Possible Answer:

Strong negative or inverse or positive (moderate or moderate to strong was accepted).

Although the relationship appears negative, and convention indicates a negative relationship, the axes were not labelled so it was accepted that the relationship could be either positive or negative.

Question 19b

Marks	0	1	Average
%	65	35	0.4

Possible Answer:

Any of:

- test of correlation
- correlation coefficient
- any other specifically named appropriate test of correlation (for example, 'Pearson's' or 'Spearman's').

Many students indicated 'A test for P(robability)', which was not an acceptable response.